APPENDIX 1A

Miner and Forest Service
Water and Soil Resource Protection Measures
For
Alternatives 2 and 3

Altona

Mining activity: Placer
Mining sites: 1
Processing sites: 1, location currently unknown
Water source: Adit discharge
Access: Existing and proposed TMA roads (Appendices 3 and 7).
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

> **FS NOTE: Altona Placer Amendment:** The mitigations found in the amendment beginning on page 11 of the Plan are based on old FS mitigations. They have been updated for the Granite Mining EIS. Therefore, the mitigations found in this section were not evaluated as part of the proposed Plan under Alternative 2 and do not apply. The new FS requirements are evaluated under Alternative 3.

Water Resource Protection Measures

Gravels will be tested along the high cut banks and in the riparian area, but work will be conducted no closer than 20 feet from the active stream channel (p. 5)

Quartz Gulch will be monitored visually for any increase in sediment (p. 7).

Soil Resource Protection Measures

Only one test hole will be open at a given time….. the hole will be refilled with gravel, topsoil replaced and the surface seeded (p. 5)

If small spills [of petroleum products] occur, contaminated soil will be removed from the National Forest (p. 9)

Reclamation

Test holes will be reclaimed in an ongoing process (p. 9).

If values are not as anticipated, the road will be obliterated, the ponds will be filled in, the work site recontoured and grass, brush and trees planted to meet original densities (p. 9).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. Measurement of the buffer would start at the top of the valley floor terrace-channel bank break in slope of the side channel (See Appendix 1B and Figures 1B-2 and 1B-3 for explanations of this feature).

2. Put straw bales/coils on the valley floor between the activity site and the creek [side channel]

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Olive Creek

Lode-related activity

L1 – L12 EXCEPT L4 because no lode mining proposed.

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

FS closed roads and TA roads EXCEPT 1042-M1a: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

TA road 1042-M1a: All Z-requirements EXCEPT Z11. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water and settling ponds: New construction: R10, 15, 16, and 18. Reclaim.

Belvadear

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Groundwater
Access: Open Forest Service roads only
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

A 20 foot buffer will be maintained between the test holes and the stream. During testing the rock tailings piles located 20 feet from the stream will protect water quality….To protect the stream during additional ground disturbance, straw bales will be staked along the stream at the outside edge of the gravel berms. (p. 6)

The springs will be protected by maintaining a 20 foot or greater buffer around them. (p.6)

All processing water will be contained in ponds. None will move off site. The stream near the mining area will be checked visually for increased in sediment caused by this operation. (p. 8)

Soil Resource Protection Measures

As a rule, only one test hole is open at a given time….Reclamation of mined areas will be on going (p. 6).

Substrate material will also be stockpiled separate from topsoil….Existing piles of gravel will be used to fill the excavations or clean washed gravels will be hauled back to fill the excavations (p. 6).

Mine access roads [1305-E2] will be maintained with waterbars where needed (p. 6).

Areas of bare soil which result from the operation will be vegetated (p. 8).

Accumulations of dead woody material and brush, limbs etc will be piled to burn or to be spread over reclaimed and seeded ground (p. 9).

Reclamation

Annual reclamation will consist of:

1) Maintaining un-numbered onsite access roads (TA road 1305-E2] refreshing waterbars and stabilizing ponds

2) Only one test hole will be open at a given time with reclamation of the test sites ongoing.

3) Mining excavations will be kept to ¼ acres or less in size

4) Test/mining areas will be reclaimed on an ongoing basis by refilling with rock tailings, returning to similar land contours and replacing topsoil and seeding as needed (p. 10).

Final Reclamation:

1) The mine access roads [1305-E2] will be water barred and closed when no longer needed for mining

2) Mined areas [under this Plan] will be returned to similar contours, topsoil will be replaced and the area vegetated with species similar to the surrounding area.

3) Grass, brush and trees will be planted to the current densities

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

No WRPMs could be identified that would prevent a discharge of sediment into Olive Creek given the location of the proposed mining in the riparian area. Discharge potential remains.

General Requirements (Appendix 2)

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Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Olive Creek

W1 – 3: Requirements for working in wetlands and floodplains

Placer-related activity

Same as Soils below

Access Roads

TA roads 1042-E1a, E1b, E1c and FS closed roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

TA roads 1042-M1a: All Z-requirements EXCEPT Z11. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling pond: R10, R15, R 16 and R 18. They are the same pond. No riparian vegetation. Reclaim.

Blue Sky Bull Run

Mining activity: Placer
Mining sites: 6
Processing sites: 1
Water source: Groundwater
Access: proposed and existing TMA roads, temporary bridge (Appendices 3 and 7)
Fords: 2, one is across Bull Run Creek, and one is across Swamp Creek
Suction dredging: Yes, on Bull Run Creek

Alternative 2 (Plan as submitted by miner)

FS NOTES: Monitoring: On page 8 of the Plan, under the Monitoring section, the miner states that the Forest Service will do various types of monitoring. The references to Forest Service monitoring do not apply under Alternative 2. The Forest Service would make annual inspections and occasional site visits, and would make the final site visit to determine that reclamation is completed. The day-to-day monitoring of the site is the responsibility of the operator.

Forest Service Evaluation of Plan of Operation, Section VI: The Required changes/modifications/special mitigation for plan of operations found in Section VI beginning on page 10 of the Plan are old FS requirements. They have been updated for the Granite Mining EIS. In addition, the NAZER Milling amendment is also old and tied into the old FS requirements. Therefore, the changes/modification/special mitigations found in this section were not evaluated as part of the proposed Plan under Alternative 2 and do not apply. The new FS requirements are evaluated under Alternative 3.

Water Resource Protection Measures

A small washing plan(t) will be set up approximately 40 feet from Bullrun Creek in an area which is separated from the creek by a very high mound of old tailings and vegetated ground. Two or three small ponds approximate 5'x10'x5' each will be constructed to control muddy process water. (p. 3)

All test holes will be located at least 30 feet from Bullrun Creek….a small washing plant or highbankers will be set up at the camp area where several dredge ponds which are not connected to Bullrun Creek exist. These are over 50 feet from the creek (p.4).

A vegetated buffer strip at least 30 feet wide will be maintained between the test holes and Bullrun Creek or any bogs or springs. Where test sites are 50 feet from the stream no further sediment barrier will be needed but where test holes are located 30-50 feet from the stream, straw bales will be staked along the stream to prevent sediment from entering Bullrun Creek (p. 5)

Visual monitoring of the stream will take place during the time testing and processing is taking place (p. 5)

Straw bales will be staked along the creek in areas where test excavations are between 300-50 feet from Bullrun Creek (p. 6).

Small quantities of hydraulic fluid and diesel will be…at least 100' from Bullrun Creek on the Bullrun claims. On the Blue Sky claims these petroleum products will be located on the south side of the creek [Bull Run] at least 50' from the stream (p. 6)

Soil Resource Protection Measures

Only one test hole will be open at a given time. Topsoil will be scraped aside at each test site. Soil will be stockpiled on the side of the hole furthest from the creek to ensure soil does not move towards the water…Clean gravels will be returned to the test excavations in an ongoing manner. (p. 3)

Test holes, approximately 11 feet deep, will be excavated by scraping off the topsoil if available and stockpiling the first foot of soil separate from the substrate….Washed gravel will be hauled back to the hole and used to refill it. (p. 4)

Roads will be waterbarred and rocked where necessary…. Top soil will be used to reclaim the surface as soon as the gravel has been tested. Gravel will be returned to the test hole. (p. 5)

Reclamation will be ongoing with the test operation. Ground disturbance will be kept to a minimum (p. 6)

Suction Dredging

Care will be taken not to undermine banks or cause stream turbidity. Testing will also take place using hand tools. Instream work will be limited to the time recommended by ODF&W (p. 3).

Plan to use a 4-inch or smaller suction dredges (p.4).

Reclamation

Reclamation #3. During mining, sod and top soil will be removed and stored separately. During reclamation, topsoil and sod will be replaced (p. 7).

Reclamation # 4. Test sites excavated by hand will be refilled with gravel, and topsoil will be placed on top after mining activity terminates. These areas will be seeded (p. 7).

Reclamation #10. During final reclamation, sites will be reclaimed by refilling the excavations and replacing topsoil, seeding, planting brush to the pre-mining or greater densities, and mulching with wood and/or straw certified free of noxious weeks. (p. 7)

Noxious Weeds #4. Revegetation of areas of bare soil would be accomplished using an appropriate seed mixture and rate… (p. 8)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Processing site

None needed

Blue Sky Bull Run (Blue Sky site #1)

None needed

Blue Sky Bull Run (Blue Sky site #2)

1. Place straw bales/coils along the low berm that separates the activity site from Swamp Creek to increase the effectiveness of the low berm.

Blue Sky Bull Run (Blue Sky site #3)

1. Measurement of the buffer would start at the top of the valley floor terrace-channel bank break in slope of the side channel (See Appendix 1B and Figures 1B-2 and 1B-3 for explanations of this feature).

2. Put straw bales/coils on the valley floor between the activity site and the side channel of Bull Run Creek.

3. The test hole must be filled in at the end of each season and the disturbed area seeded and covered with straw.

4. Straw bales will be staked on the valley floor where the mining occurred in a pattern to disperse stream flows during the Spring high flows and prevent concentrated flows that could erode the disturbed area.

Blue Sky Bull Run (Blue Sky site #4)

1. Measurement of the buffer would start at the top of the valley floor terrace-channel bank break in slope (See Appendix 1B and Figures 1B-2 and 1B-3 for explanations of this feature).

2. Miner's protection measure related to straw bales applies to this site because the site is adjacent to Bull Run Creek.

Blue Sky Bull Run (Bull Run site #1)

1. Measurement of the 30 foot buffer would start at the top of the valley floor terrace-channel bank break in slope (See Appendix 1B and Figures 1B-2 and 1B-3 for explanations of this feature).

2. Miner's protection measure related to straw bales applies to this site because site is adjacent to Bull Run Creek.

Blue Sky Bull Run (Bull Run site #2)

1. Measurement of the buffer would start at the top of the valley floor terrace-channel bank break in slope (See Appendix 1B and Figures 1B-2 and 1B-3 for explanations of this feature).

2. Miner's protection measure related to straw bales applies to this site because site is adjacent to Bull Run Creek.

3. Temporary bridge: The bridge would be replaced with a two-track road [proposed 7375-M1b] would be made to access the site through the forest. Location of the two-track would be determined with input from the Forest Service.

Fords

Bull Run ford: None needed. Ford is already sloped and hardened

Swamp Creek ford: Rock and slope ford approaches

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Bull Run Creek

W1 – 3: Requirements for working in wetlands and floodplains

Placer-related activity

Same as Soils below

Access Roads

TA roads 7300-E4a, E4b, and E4c: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

TA roads 7300-M4a, M4b, M1a and M1b: All Z-requirements. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

*Source water pond***:** R10 only. Old dredge pond. Year-round water, good riparian vegetation, stable, good wildlife habitat No reclamation required.

Settling pond: R10 only. Old dredge ponds. Seasonally hold water. Lush sedges and grasses in bottom. Stable. Good wildlife habitat. No reclamation required.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).

Blue Smoke

Mining activity: Placer
Mining sites: 3
Processing sites: 1
Water source: Groundwater
Access: closed Forest Service road (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

…sites are all at least 150 feet from Granite Creek (p. 2)

…pond #3 will be used as back up overflow pond to ensure no sediment could be discharged into Granite Creek. Both [pond and creek] will be monitored constantly to ensure that does not happen. A silt fence will be installed between settling pond and overflow pond to decrease sediment (p.3)

Granite Creek will be monitored to be sure there is no discharge or undue seepage (seepage of muddy water) from the ponds (p. 4).

Soil Resource Protection Measures

…tailings will be placed back in hole and this excavation will be refilled to normal land contours using the material that came out of the hole and/or like material before continuing or moving to excavation at site #2 (p. 2)

Topsoil will be spread and the disturbed area will be seeded… (p. 2)

…topsoil, if present will be stockpiled separate from substrate material (p. 3)

Areas of bare soil created during the course of this operation will be seeded. Mine access roads will be water barred and rocked where needed (p.4)

At fall shutdown, roads will be have water bars improved, if needed (p. 5)

At fall shutdown….areas of bare soil caused during the course of the mining season will be seeded with seed certified free of noxious weeds (p. 5)

Test holes will be refilled with washed gravel and like material to normal land contours. Dried silt and sand from the setline ponds will be used as growth medium (p. 5)

No hazardous substances or chemicals will be used other than diesel…and small amounts of other petroleum products…These products will be stored in the bed of a pick-up (p. 5)

Reclamation

Interim reclamation**:**

1. will involve maintaining water bars in the roads as needed, rocking any soft section of roads (p. 6)

2. Placer pits …will be refilled to normal land contours, subsoil, topsoil and/or silt from the settling ponds will be placed on top and these areas will be seeded (p. 6)

3. Grass will be planted in areas disturbed (p. 6)

4. Will also make an onsite plan with USFS mineral personal on the details of achieving reclamation goals…(p. 6)

Final Reclamation will be designed with USFS mineral special uses person and executed according to the plan designed. (p. 6)

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> **FS NOTE:** Under Alternative 2, the miner does not identify specific reclamation but states he will work the Forest Service. Therefore, analysis of effects related to final reclamation is discussed only in Alternative 3. Alternative 3 includes Forest Service reclamation requirements as per the miner's Plan.

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Processing site

1. Water level must stay at consistent elevation in both the processing and overflow settling pond (Pond #3) and must maintain the existing difference in water surface elevations between ponds to prevent a change in subsurface water elevation through the fill.

Blue Smoke sites 1, 2, and 3

None needed

General Requirements (Appendix 2)

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are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

FS closed road: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water and settling ponds: R10 only. Ponds are old dredge ponds and have water year round. They are stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

Bunch Bucket

Mining activity: Placer
Mining sites: 2
Processing sites: 1
Water source: unknown. Pond currently dry
Access: existing TMA roads (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

A very small creek drains the wash plan site during spring runoff and 3 or 4 log dams will be place in the creek bed downstream area of operations to help settle any turbidity that may occur (p. 5).

Soil Resource Protection Measures

The overburden (topsoil) will be stockpiled alongside the trenches as they are dug. Sand and gravel will be trucked to the trommel site….then returned to the trench…The overburden will be preplaced and the trench areas reclaimed as soon as practicable each year (p.3)

All waste sand, gravel and stones will be redeposited into the trenches from which they came (p. 5)

Possible seeding of grass in the roads and working areas of the claim… (p.6)

Reclamation

Roads no longer needed will be closed to vehicular traffic (p. 7).

The trommel site will be landscaped to blend with surrounding area (p. 7).

The water supply/settling pond will either be left for wildlife habitat enhancement or filled in according to USFS recommendations at that time (p. 7).

The area will be revegetated in cooperation with USFS using their recommendations at that time. (p. 7)

> **FS NOTE:** Under Alternative 2, the miner does not identify specific reclamation but states he will work the Forest Service. Therefore, analysis of effects related to final reclamation is discussed only in Alternative 3. This alternative includes Forest Service reclamation requirements.

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. No activity in the very small creek mentioned in the Plan (site 1) would occur without first input from the minerals administrator and district hydrologist and appropriate WRPMs identified and implemented.

General Requirements (Appendix 2)

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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of small, unnamed creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water and settling ponds: R10, R15, R16, R18. They are the same pond and the pond is dry. No riparian vegetation. No wildlife value. To be reclaimed.

City Limits

Mining activity: Placer
Mining sites: 1
Processing sites: 1. Using existing old dredge ponds
Water source: Ground water
Access: existing TMA roads (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Process water will be constantly recycled in the off-channel settling ponds which are separated from Granite Creek by the rock tailings area and the paved highway (p. 5)

Hazardous materials (petroleum products) are stored out of the floodplain (p. 8)

No chemicals are used in the operation (p. 9)

No fueling of equipment or routine maintenance takes place near streams, springs, or wetlands (p. 9)

A zero discharge settling/recycling system is utilized (p. 9)

No waste storage occurs in riparian areas, floodplains, or spring areas (p. 9)

Soil Resource Protection Measures

Test holes will be excavated by first removing topsoil in areas where topsoil is present. This soil will be stockpiled at least 100 feet from the ponds. Substrate will be piled separately from the topsoil (p. 5 and 6)

Washed gravel will be returned to the test hole or if the hole is in tailings, like material will be used to refill the test hole….Substrate material will be refilled on top of the washed gravel and topsoil will be spread over the surface. Once the hole has been reclaimed, the surface seeded, a new hole will be opened up (p. 6).

To control erosion, the east access road will be spot rocked in areas where rock is needed. Areas of bare soil will be seeded each fall (p. 7).

During winter closures, areas of bare soil will be seeded….roads will be in a stable, drivable condition (p. 7).

Only small seedlings and saplings will be removed during testing and wherever tree removal takes place, trees will be replanted (p. 7).

Diesel will be brought in using a 100 gallon tank located in the bed of a pick-up….no onsite storage of fuel (p. 8)

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil will be removed from the NF (p. 8)

During ongoing mining activities all disturbed sites…are maintained in a stable condition (p. 9)

Roads are treated to prevent significant soil movement, rutting and sedimentation…. (p.9)

All seed and straw used is certified free of noxious weeds (p. 9).

Areas of bare soil created by the operation are seeded using a Forest Service approved seed mix (p. 9).

Grass, brush and trees are replanted to the current or greater densities (p. 9)

Areas are reclaimed to the pre-mining condition or better (p. 9)

Piles of wood or straw bales are available in case of erosion caused by storm events (p. 9)

Reclamation

Interim reclamation will involve

1. reclaiming test holes by filling with gravel, replacing substrate and top soil and seeding (p. 8)
2. If down wood is available, this will be place over the reclaimed test sites to help hold the soil (p. 8).
3. Areas of bare soil will be seeded where the washing plant is set up. Seed that is free of noxious weeds will be used. (p. 8)

Final reclamation will include reclaiming all test sites to normal contours ….Grass, brush and trees will be planted to approximate the current plant densities (p. 8).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None

General Requirements (Appendix 2)

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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: not needed based on site characteristics

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling ponds: R10 only. Ponds are old dredge ponds and have water year round. They are stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

East Ten Cent

Mining activity: Placer
Mining sites: 1
Processing sites: 1. Using existing old pond
Water source: Ground water
Access: Forest Service closed roads and existing TMA roads (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

A backhoe will be used to excavate a series of holes @ 12 ft diameter along the upper cut bank (at least 10 feet away from the creek (p. 4).

Rock tailings and a small bench exist between the work area and the creek….This bench will continue to be built up with waste rock (p. 5).

Will watch to make sure no sediment goes into the creek (p.5)

Soil Resource Protection Measures

Each hole will be filled back in before the next one is started (p.4)

Top soil will be placed in the old trough area in the small meadow to the east (p. 5)

[Hazardous waste] will be hauled in personal rigs to the sites as needed in marked/approved containers (p. 6)

Spill pan will be used to fill pumps (p. 6)

Soil will be cleaned up and hauled off site (p. 6)

The unnamed mining roads [7350-E1a and 7350-M1a] will be water barred and maintained as necessary to reduce run-off and keep sediment out of the creek (p. 7).

The unnamed mining roads [7350-E1a and 7350-M1a] will be ripped, seeded and covered with adjacent brush…Where appropriate top soil will be replaced and reseeded to match the small grassy meadow to the east (p. 7).

Reclamation

Interim reclamation

Reclamation will be ongoing as each hole is worked.

Unnamed mining roads [7350-E1a and 7350-M1a] will be water-barred and maintained as necessary to reduce runoff and keep sediment out of the creek.

Final reclamation

The unnamed mining roads [7350-E1a and 7350-M1a] will be ripped, seeded and covered with adjacent brush (p. 7)

The ground along the creek will be replaced in a similar condition to the surrounding area (dredge tailings) (p. 7).

Where appropriate, top soil will be replaced and reseeded to match the small grassy meadow to the east (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. Equipment access to the mining site will be limited to use of the FS 7350-070 road, 7350-E1a and designated, miner-created two tracks.

2. A berm of straw bales (1-2' high) will be placed between the mining activity and the edge of the bench along the creek.

3. Waste rock will not be placed on the berm but temporarily on the south side of the two-track shown on the site map, in the grassy meadow.

4. The area to be mined will be worked from the south end to the north end. This allows the bench to be enlarged at the north end prior to any activity in this portion of the cutbank.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of East Ten Cent Creek

Placer-related activity

Same as Soils below

Access Roads

FS closed roads and TA road 7350-E1a: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

TA road 7350-M1a: All Z-requirements EXCEPT Z 11. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling pond: R10 only. Ponds are old dredge ponds and have water year round. They are stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

Eddy Shipman

Mining activity: Placer and Lode
Mining sites: 3. Adits east and west of the 7300 road and a placer site
Processing sites: 1. Would be used for lode and placer portions
Water source: Surface water from Chipman Gulch
Access: Forest Service closed roads and existing TMA roads (Appendices 3 and 7)
Fords: One. It crosses Granite Creek to access east adit.
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

No fueling of equipment or routine maintenance takes place near streams, springs or wetlands (p. 11)

State water quality standards will be met. (p. 11)

No chemicals are used in the operation (p. 11)

No fueling of equipment or routine maintenance takes place near streams, springs or wetlands (p. 11)

No waste storage occurs in riparian areas, floodplains or spring areas (p. 12)

Lode specific (east and west sides):

Mining timbers are individually selected and cut at least 50 feet from the streams… (p. 7).

No chemicals are used in milling. Water from wells at Buffalo enters Chipman Gulch and this water is used for milling (p. 7).

Granite Creek will be monitored for turbidity during the time work is taking place at the portal east of the highway (p.8).

All activity takes place on the mine dump and at the portal 100 feet from the creek and east of the highway (p. 9).

Placer specific (west side only):

At least a 20 foot buffer will be maintained between the gulch and mining area (p. 7).

If trees must be removed, these will be placed along the gulch to prevent headcutting (p. 7).

The corral will be located at least 100 feet from the stream (p. 8).

Chipman Gulch will be monitored to be sure there is no discharge or seepage of process water. (p. 8)

Soil Resource Protection Measures

Existing rock dumps are stable and will continue to gradually increase in depth. Periodically, mill tailings will be dried, then used to refill dry shafts and pits on claims. (p. 7)

There is little topsoil, but where it is present, topsoil will be stockpiled for later reclamation (p. 7)

Silt and sand will be cleaned periodically from the ponds and stockpiled for later use in reclamation. (p. 7).

Mill tailings will be redeposited underground in dry pits or shafts (p. 9)

….no onsite storage of fuel other than in the tank in the pick-up…Oil absorbing mats will be placed under stationary equipment (p. 10)

Absorbant material will be kept on site in case of small leaks or spills. Contaminated soil will be removed from NF (p. 10).

During ongoing mining activities all disturbed sites…are maintained in a stable condition (p. 11)

Roads are treated to prevent significant soil movement, rutting and sedimentation…. (p.11)

Grass, brush and trees are replanted to the current or greater densities (p. 11)

Areas of bare soil created by the operation are seeded using a Forest Service approved seed mix (p. 11).

Piles of wood or straw bales are available in case of erosion caused by storm events (p. 11)

Reclamation

Interim Reclamation will involve

1. maintaining water bars in the roads as needed…. (p. 10)

2. Seeding areas of bare soil caused by the mining operation. Seed that is free of noxious weeds will be used (p. 10)

Final reclamation…will include

1. stabilizing mine dumps if needed, filling in and returning to near normal contours the placer area and the shafts and pits where the lode mining take place (p. 10)

2. Grass, brush and trees will be planted to approximate the current plant densities. (p.10)

3. During ongoing mining activities all disturbed sites (roads cut and fill slopes, camp sites, ponds, dumps and stockpiles) are maintained in a stable condition. (p. 11)

4. Roads are treated to prevent significant soil movement, rutting and sedimentation. Past treatment includes spot rocking, installation of water bars, ditching and outsloping of road surfaces where possible (p. 11).

5. All mined areas are stabilized prior to seasonal shutdowns or extended equipment maintenance and before equipment removal. (p. 11)

6. Piles of wood or straw bales are available in case of erosion caused by storm events. (p. 11)
7. Areas of bare soil created by the operationa re seeded using a Forest Service approved seed mix (p. 11)

8. Grass, brush and trees are replanted to the current or great densities (p. 11)

9. Areas are reclaimed to the pre-mining condition or better (p. 11)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Ford:

1. The channel bed must be stable and the water depths must be below the frame on the vehicle before the ford can be used in order to ensure that equipment can safely cross.

2. Rock both approaches to the ford used to access Adit A (FS 7300-680 and TA road 7300-E1d).

Processing site specific

1. Build a berm the lower portion of each pond to prevent surface water and sediment from entering the wet meadow.

Place a straw bale berm during construction and use of the source water and the settling ponds and the edge of the bench to trap any sediment generated by the operation from entering into the wet meadow and Chipman Gulch, and thus Granite Creek.

Placer Mining specific

1. If any placer mining occurs in old lode tailings or results in disturbing the old lode tailings than L3 and L5 apply.

2. Place a straw bale berm between the existing horse corral and creek to prevent runoff of nutrients.

3. No removal of stream shade bearing trees

Lode Mining specific (adits A and B)

See General Requirements below (L1-L12)

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek and Chipman Gulch

W1 – 3: Requirements for working in wetlands and floodplains

Placer-related activity

Same as Soils below

Lode-related activity

L1 – L12

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Ponds

Processing site

Source water pond and settling ponds (Placer portion): R10, R15, 16, 18. Ponds would be new construction. Reclaim.

Access Roads

Closed FS roads and TA roads: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

Soils

R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Grubsteak

Mining activity: Placer
Mining sites: 2.
Processing sites: 1
Water source: Groundwater
Access: Existing and proposed TMA roads (Appendices 3 and 7)
Fords: One. It crosses Clear Creek.
Bridge: Existing bridge across Clear Creek
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Site A = test site and processing site

No trees will be impacted anywhere within a 100 ft strip of stream (p. 4a)

Small setline/recycling ponds will be used to control muddy water (p. 5)

A rock tailing and vegetated buffer strip at least 100 feet wide will be maintained between the processing site and the creek (p. 5)

Material from test holes within 100 ft strip will be processed at least 100 ft away from creek (p. 5).

…no monitoring other than visual checks [of creek] (p. 5).

Processing operations will be conducted at least 100 feet from the creek (p. 6)

Site B = test site

The hole will be approximately 20 ft from the creek and a buffer of unworked ground of at least 5 ft wide will be maintained between the test hole and creek bank (p. 4a).

A berm of gravels, straw bales and filter cloth will be used to provide an additional buffer agent along the creek (p. 4a)

No trees will be impacted anywhere within a 100 ft strip of stream (p. 4a)

Soil Resource Protection Measures

A pile of top soil from when the hole was first dug resides just west of the hole now (p. 4a)

Any additional ground space worked to create a deeper hole and/or a ramp will have top soil scrapped off and another designated top soil pile made and available for reclamation (p.4a)

…tailings will be returned to the test excavations and the top soil from the stock piles will be returned on top and then revegetated with grass seed (p.4a)

Wood will be place on reclaimed ground to duplicate its current density (p. 4a)

Topsoil will be used to reclaim the surface when each test area is finished (p.5)

Roads will be waterbarred if necessary. (p. 5)

All areas of bare soil caused by the mining operation will be revegetated with grass seed (p. 5)

The petroleum products will be stored on the back of a pickup or utility trailer…..Equipment will be checked for leaks and no fueling of equipment or routine maintainance will take place near the creeks or wetland. Should there be a spill of petroleum products, the contaminated soil will be removed from the National Forest (p. 6).

Reclamation

Each test hole will be reclaimed by refilling with washed tailings, replacing substrata and then place sod or topsoil on top and returned to normal contours. Topsoil will be seeded with a Forest Service approved mix. If trees are removed, they will be replanted to approximate current densities (p. 7)

The unmarked road into and around the claim will be restored, grass seeded and debris pulled over and in a contour similar to the surrounding area (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resource Protection Measures (WRPMs)

Ford

1. Rock southwest approach of ford

Site A

1. None

Site B

1. Place straw bales/coils as a berm between the creek and the mining activity. Gravels and filter cloth are not be used.

2. Measurement of the 20-foot buffer would start at the top of the valley floor terrace-channel bank break in slope of the SIDE channel (see Appendix 1B, Figures 1B-2 and 1B-3 for explanation of this feature).

3. Miner must fill the existing hole at Site B at the end of each season.

4. Flow Alteration potential: If the hole starts to fill with water, then the Miner is to stop and contact the Forest Service. Site conditions will be reevaluated at that time and additional mitigation measures added if necessary.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

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G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Clear Creek

Placer-related activity

Same as Soils below

Access Roads

TA road 1300-M1a: All Z-requirements. R13 applies.

Soils:
R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond at Site A: R10, R15, 16, 18. The source water pond is steep walled, has no riparian vegetation, and is a wildlife trap. Reclaim.

Settling pond at Site A: R10, R15, 16, 18. The settling pond would be new construction. Reclaim

Hopeful #1

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Granite Creek and groundwater in old dredge hole
Access: Forest Service closed roads (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Water from mining operations is put into dredge holes and filters through the old dredge tailings (p. 7)

…place the topsoil and waste rock so that there is no runoff into the creek (p. 7)

Soil Resource Protection Measures

Small amounts of petroleum products will be stored in vehicles and will be removed at the end of each operating season (8).

If there are any spills the Forest Service will be notified (p. 8)

Reclamation

Top soil will be stockpiled for later reclamation… (p. 9).

….area of disturbance will be reclaimed and seeded with a grass mixture prescribed by the Forest Service (p. 9)

Prospect holes will be filled in (p. 9)

The spur road [TMA road 1035-E2a] into the site will have log, rocks etc. placed on it to allow the return to its natural state (p. 9)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None needed

General Requirements (Appendix 2)

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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

FS closed road: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water and settling pond: R10 only. The source water pond and settling pond are the same pond. Pond is an old dredge pond. Has water year round. It is stable with well-developed riparian vegetation around it. Good wildlife habitat. No reclamation required.

Hopeful 2 & 3

Mining activity: Placer
Mining sites: Four. One is on the south side (#4) and three are on the north side (#1, 2, 3)
Processing sites: Two. One is on the south side and one is on the north side of Granite Creek
Water source: a spring and groundwater
Access: Four existing TMA roads (Appendices 3 and 7)
Fords: One, across Granite Creek.
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

…both processing sites are located over 50 feet from Granite Creek (p. 3)

The static level of the water [in the ponds] will be maintained at 1' – 2' lower than the top of the bank (p. 4)

Surface flows during snow melt in the spring will be ditched around the ponds (p. 4)

All mining activities will take place approximately 20 feet or more from Granite Creek (p. 4).

Granite Creek will be monitored for turbidity during the time that processing takes place (p. 4).

Mitigation measures recommended by the Forest Service concerning the fords will be implemented (p. 5).

Soil Resource Protection Measures

To control erosion, areas of bare soil resulting from the operation will be seeded. Down wood, where available, will be place on reclaimed area to help hold the soil….Erosion potential is minimized by placement of topsoil downslope of a diversion ditch, so a storm event cannot wash it into any draws or toward Granite Creek. (p.4, #2)

Reclamation, including vegetation of reclaimed areas will be kept current (p. 4, #4)

Placer tailings and washed gravel will be returned to test holes and mining excavations and the surface recontoured in an ongoing manner. (p. 4)

Hydraulic fluid, gas and oil will be brought in using one-five gallon containers….Absorbent material or drip pans will be placed under stationary equipment (p. 5).

Absorbent material will be kept on site in case of small leaks or spills. Equipment located on site will be used to berm, contain and remove contaminated soil and rock in the event of a spill. The Forest Service will be informed if a spill occurs (p. 5)

Reclamation

Interim reclamation will involve ongoing reclamation of test and mining excavations and seeding of areas of bare soil where disturbance took place. Seed that is free of noxious weekds will be used (p. 6)

Final reclamation…will include closing all mining excavations and recontouring the surface. Process ponds will be reclaimed to normal land contours (p. 6).

Roads will be left in a stable, non-eroding condition…The mine access roads [TMA roads 1035-E1a, E1b, E1c, E1d] will continue to be used for several years following reclamation to monitor

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

East Ford

1. Channel bed must be stable and water depths must be below the frame on the vehicle before the ford can be used in order to ensure that equipment can safely cross.

2. North approach: Rock the north approach to the slope break plus 25 feet of additional road.

3. South approach: The south ford approach and the existing south access road (TA 1035-E1d) are treated as a unit because of the complexity of the WRPMs. See WRPMs under TA road 1035-E1d below

TA road 1035-E1d (used to access Site 4 and the south side processing area) and south approach of ford

The south side approach to the east ford and TA 1065-E1d are combined because the discharge call under Alternative 2 is because the characteristics of the road (granitics and rutted) and the ford approach (fines) and the way the road and ford approach interact. In identifying Forest Service WRPMs to prevent a discharge of sediment into Granite Creek from the use of TA 1035-E1d and the ford approach it was necessary to divide the road into segments. See map and sketch in the project file for delineations of segments.

Segment A: The south side ford approach to the first water bar.

1. Rock this section of road/ford approach.

Segment B: The road steepens for about 35 feet to reach the top of the hill.

1. Place a water bar at the base of the steep section of road where there is a 2.5 foot wide flat area on the stream side of the road. Forest Service Minerals Administrator will be on site and verify water bar location prior to construction.

2. Design the water bar so that it diverts towards the flat area (only option as the other side is a hillslope). Place straw bales at the stream side edge of the flat area to trap all sediment leaving the road.

3. Do NOT rock this section because rock will only fill the water bar.

Segment C: The portion of the road at the top to the hill to the second water bar

1. A water bar will be placed where the road flattens out. Forest Service Minerals Administrator will be on site and verify water bar location prior to construction.
2. This portion of road will be rocked.

Segment D: The portion of the road between Segment C and the south processing site.

None needed except in the vicinity of the unnamed tributary. WRPMs for this area below.

Unnamed tributary on the south side

1. Rock both approaches to where 1) the road flattens out (east side) or there is a change in slope (west side).
2. Leave existing corduroy bridge in the channel

Pond 2 (North processing site)

1. Ensure that two proposed ponds are deep enough and sufficiently bermed to prevent water from overflowing the top of the ponds. Miner will work with the Forest Service Minerals Administrator to ensure proper location of ponds and placement of berms.
2. Source water pond will be the west pond and at least 7 feet from the terrace break in slope.
3. Settling pond:
    a. Will be the east pond
    b. Will be at least 7 feet from the terrace break in slope.
    c. A sediment berm will be created along the stream-side edge of the settling pond to eliminate a small swale.
    d. Straw bales will be put on the stream-side edge of the sediment berm.

Pond 1 (South processing site)

None needed

Mining sites 1, 3, and 4

None needed

General Requirements (Appendix 2)

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are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

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G5: Disturbed areas kept in stable conditions
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G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

W1 – 3: Requirements for working in wetlands and floodplains

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Pond 1 (North side)

Source water and settling ponds: R10, R15, 16, 18. New construction. Reclaim.

Pond 2 (South side)

Source water and settling pond: R10 only. Source water pond and settling pond are the same pond. Pond is an old dredge pond and has water year round. It is stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

L and H

Mining activity: Placer and Lode
Mining sites: Four. One placer work area upslope of 1305-E5a and three adits
Processing sites: 1
Water source: Granite Creek and groundwater in old dredge hole
Access: Existing TMA roads (Appendices 3 and 7)
Fords: none
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Visual monitoring of Olive Creek will take place during mining and processing activities (p. 4, #3).

Placer portion:

The processing site is approximately 200 feet from a spring (p. 2)

…all excavations along the mine access road will be upslope of the road…and at least 10-15 feet from the high water mark of the stream (p. 3)

All testing/mining activities will take place at least 10-15 feet from the high water mark of Olive Creek and the access road [1305-E5a] acts as a barrier to keep sediment from the mining excavation from entering the creek (p. 4, #2).

…..exploration/mining will take place in the rock tailings away from any live water and out of the riparian area along the mine access road [1305-E5a] (p.5, # 4)

> **FS NOTE:** Access road 1305-E5a only separates Adits1, 2 and the placer area from the creek. Adit 3 has no barrier.

Lode portion:

No slough material or dump rock will be allowed to travel down into Olive Creek (p. 3).

No chemicals will be used in processing (p. 3)

Soil Resource Protection Measures

Hydraulic fluid, gas and oil will be brought in using one-five gallon containers….Absorbent material or drip pans will be placed under stationary equipment (p. 5).

Absorbent material will be kept on site in case of small leaks or spills. Equipment located on site will be used to berm, contain and remove contaminated soil and rock in the event of a spill. The Forest Service will be informed if a spill occurs (p. 6)

Lode portion

The portal [third portal south of Olive Creek] has a large dump, and as the portal entrance is cleared, the material will be stockpiled in one area of the rock dump to be used later in reclamation. (p.3)

To control erosion, areas of bare soil resulting from the operation will be seeded. Down wood, where available, will be placed on reclaimed areas to help hold the soil. The access road will be spot rocked in areas where rock is needed. (p. 4, #2)

Erosion potential is minimized due to the fact that the processing site and the mining areas are in rock tailings with little soil and the processing site is located upslope of the headwater springs. (p. 4, #2)

Roads will be waterbarred where needed. Reclamation will be kept current….at the close of the operation, roads will be in a stable, drivable condition. (p.5, # 4)

Reclamation

Interim reclamation will involve seeding areas of bare soil where disturbance took place. Seed that is free of noxious weeds will be used… (p. 6)

Placer portion: Reclamation of excavations will be ongoing with the mining so that only a minimum of ground is open at a given time (p. 3)

There are many piles of rock and gravel on site which will be used to refill the new excavations and to refill historic excavations (p.3)

Final reclamation will include refilling the settling ponds, closing any open excavations, sloughing adits shut…replacing topsoil or other grown medium. Grass, brush and trees will be planted to approximate the current plan densities…. (p. 6)

Trees which must be removed will be moved out of the way of the operation and during reclamation, these trees will be spread back over the reclaimed ground. (p. 3)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Placer portion

None needed

Lode portion

1. Adit 3: Waste rock/tailings will NOT be returned to the adit but placed at a site selected with input from the minerals administrator and the district hydrologist. Once in place, the waste rock and tailings will be graded to ensure runoff and capped with a minimum of six inches of soil. The soil cap is to be seeded with an approved Forest Service mix to create a vegetative cover.

2. Also General Requirements L1 through L12.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Olive Creek

Placer-related activity

Same as Soils below

Lode-related activity

L1 – L12

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

TA roads: All Z-requirements EXCEPT Z1 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling ponds: R10, R15, R16, R18. New construction. Reclaim.

Lightning Creek

Mining activity: Placer
Mining sites: 3 (all in one area)
Processing sites: 2. One existing and one proposed
Water source: Lightning Creek
Access: Existing Temporary access roads (Appendices 3 and 7)
Fords: None
Suction dredging: Yes, on Lightning Creek

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Lightning Creek will be monitored visually (p. 11)

…..no excavations in the annual floodplain will occur …(p. 11)

No chemicals will be used in this mining operation (p. 12)

…twice a year use of the ford will help protect the water quality (p. 12)

…an undisturbed vegetated buffer 40' will be left along the stream (p. 12)

No hazardous substances or chemicals will be used other than petroleum products (p. 13)

Pumps located near the stream will be situated inside dry berms of dirt in case of small spills. Small containment mats will be used under all pumps. (p. 13).

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil wo;; be excavated to the depth of penetration and removed from the NF. (p. 13)

Suction Dredging

Suction dredging will take place only during the period July 15-August 15 (p. 12)

Soil Resource Protection Measures

The plan is to test the stockpile gravels …. (p. 3).

Washed gravel will continually conveyed back into the pit …..pit will then be reclaimed.. and recontouring the material up against the east hillslope (mining area #2) (p. 3)

Reclamation of each parcel will take place before the next parcel is opened up. Topsoil and substrate will be stockpiled upslope of the mining area (p. 3)

Each fall, areas of bare soil that will not be disturbed further will be seeded. Any stockpiles of topsoil left over the winter will be seeded using seed free of noxious weed (p. 9)

…no excavations in the annual floodplain will occur… (p. 11)

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil will be excavated to the depth of penetration and removed from the NF (p. 13)

Reclamation

Reclamation will consist of

1. pushing the stockpiles of washed tailings and oversized up against the mined cutbank,

2. recontouring the hillside,

3. covering with topsoil,
4. placing large wood over the slope, and

5. seeding with seed mix recommended by the Forest Service which is free of noxious weeds.

6. If there are more tailings than are needed to reshape the hillside, these will be … used to reclaim open test holes, trenches and dry ponds in the tailing area along Lightning Creek (p. 9)

Interim reclamation (p. 14) will involve

1. reclaiming test/mining excavations by filling with gravel,

2. replacing substrate and topsoil (or growth medium) and

3. seeding in an ongoing manner

4. If down wood is available, this will be placed over the reclaimed areas to help hold the soil.

5. Areas of bare soil will be seeded where these areas will not be disturbed again.

6. Seed that is free of noxious weeds will be used.

7. Roads will be left in a stable, drivable condition…..Each spring, the miners will go in on snow machines and plow out drifts. This will allow the roadbed to dry out so that the machinery can be pulled in without rutting the road surface

Final reclamation (p.14) will include

1. reclaiming all area disturbed under the Plan to approximate the surrounding land contours,

2. access routes along the hillside will be obliterated [TMA roads 1305-E6a, E6b]

3. reclaimed areas will be mulched with downed wood,

4. dry setting ponds will be reclaimed to normal contours…

5. Grass, brush and trees will be planted similar to the surrounding plan densities.

6. The bridge will be dismantled and the logs spread over reclaimed areas.

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None

Site-specific Fish Protection Measures relevant to Water Resources

Water Withdrawals (*From Fisheries Section*)

1. No water withdrawals are permitted in Lightning Creek after August 15 to protect fish migrating to spawn.

2. If a stream is dry below where the miner is working prior to August 15, then the miner must cease withdrawing water from the creek until flow exceeds the amount withdrawn.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Lightning Creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds (Existing Processing area ponds)

Existing processing area ponds: R10 only. The ponds used as source water and settling ponds are old dredge ponds and have water year round. They are stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

Proposed settling pond at site 3: R10, R15, R16, R18. New construction. Reclaim.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).

Little Cross 1

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Ground water
Access: Existing TMA road (Appendices 3 and 7)
Fords: None
Suction dredging: Yes, on Granite Creek

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

None provided

Soil Resource Protection Measures

None provided

Reclamation

Surface will be left as found (p. 6)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Placer mining activity

1. Place straw bales along creek edge,

2. Place a second set of straw bales 6 ft. to 8 ft. upslope from the edge of the creek.

3. Site will be reclaimed at the end of the season.

4. Any sediment that collected behind the straw bale berm located 6 to 8 feet from the edge of the creek will be removed prior to removing the stream side berm.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in

greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

TA road: All Z-requirements EXCEPT Z11 and Z144. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling pond: R10, R15, 16, 18. Would be the same pond. New construction. Reclaim.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).

Lucky Strike

Mining activity: Lode and Placer
Mining sites: 1
Processing sites: None. Site only to be tested for viable minerals.
Water source: spring
Access: FS open roads only
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Amendment

Surface run-off will be ditched around the mine dumps (p. 1).

Soil Resource Protection Measures

No use of hazardous substances is anticipated with the exception of fuel (p. 6)

Amendment

Roads will be treated as needed by spot rocking with dump rock, ditching and water barring to prevent rutting and significant soil movement (p. 1)

Stockpiles of topsoil and areas of bare soil associated with this operation will be immediately seeded to curtail soil movement (p. 1)

Grass will be re-established at the mine mill and camp sites in an ongoing process (p. 1)

If petroleum products are spilled onto the ground, the contaminated earth will be excavated and removed from the National Forest (p. 1)

Reclamation

Revegetation of areas of bare soil will be accomplished using the following seed mixture and rate (see Plan for details)….Revegetation will be complete if 20% of the previously disturbed area has at least two live plants per square foot. In areas where topsoil is present the standard is 80% of the area with 2 live plants per square foot (Amendment, p. 1).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None needed at this time because only proposing to test ore for value.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Not needed as on a ridge

Lode-related activity

L1 – L12
L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

FS open road only.

Ponds

N/A. No ponds.

Make it

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Existing pond
Access: Existing TA road (Appendices 3 and 7)
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Water to be obtained from existing ponds (using buckets) and disposal of dirty water into depressions in old dredgings (p.3).

Test hole excavation will take place on the east side of Granite Creek at least 50 feet from the creek (p.3)

The processing of the materials will be in an area that was previously dredged (50 to 100 feet to the south of the existing pond and at least 50 feet from Granite Creek. Water will be returned to an existing off channel pond. At no time is water to be returned to Granite Creek. (p.3)

All operations will have old dredging surfaces between the diggings and Granite Creek. The access road is water barred. (p. 4)

Granite Creek will be monitored visually during the time material processing is being performed. (p. 4)

All operations to be on old dredge tailings and away from Granite Creek. (p. 4)

At no time will any chemicals be used in the processing of this operation (p. 5)

Soil Resource Protection Measures

...keep existing wooden pole gate (p.3)

Road is grass covered and graveled from old tailings (p. 3)

Areas disturbed will be reseeded. (p. 4)

Washed tailings will be stockpiled and returned to the test holes in an ongoing operation (p. 5)

Fuel will be stored in containers not to exceed five gallons per container and kept off the ground in the back of a pickup or on a trailer….All fueling will take place 50 to 100 feet from Granite Creek. Absorbent material will be kept on site for potential spills. (p. 6)

Spills will be cleaned up and contaminated soil will be removed from the National Forest (p. 6)

Reclamation

Reclamation of test holes will be an ongoing processing by refilling excavations and then reseeding (p. 7)

Final reclamation will involve seeding all disturbed areas…..the seed used for reseeding will be native and weed free to FS standards (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. This WRPM is for clarification purposes: Water used for processing will ONLY be put into the depressions that are being used as settling ponds. No water will be returned to the existing off channel pond which is connected to Granite Creek and is the source water pond.

2. The miner must avoid decreasing the processing pond level below the pond outlet elevation so that the pond and Granite Creek remain hydrologically connected via surface flow.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
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G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. Ponds are old dredge ponds and have water year round. They are stable with well-developed riparian vegetation around them. Good wildlife habitat. No reclamation required.

Settling ponds: R10, R15, R16, R18. Settling ponds are depressions in old tailings. Dry. No riparian vegetation. No wildlife value. Reclaim.

Muffin

Mining activity: Placer
Mining sites: 4
Processing sites: 1
Water source: Groundwater
Access: Forest Service closed road and one existing TA road (Appendices 3 and 7)
Ford: None
Suction dredging: no

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

An unmined buffer exists between the mining sites and the gulch (p. 6)

Last Chance Gulch will be monitored to be sure there is no discharge or undue seepage (seepage of muddy water) from the ponds (p. 8).

…water is recycled from the large dredge ponds that are off channel… (p. 8)

No chemicals are used in the operation (p. 11)

No fueling of equipment or routine maintenance takes place near streams, springs, or wetlands (p. 11)

A zero discharge settling/recycling system is utilized (p. 11)

No waste storage occurs in riparian areas, floodplains, or spring areas (p. 11)

Soil Resource Protection Measures

Ongoing reclamation of test sites will take place so that only one test hole is open at a given time (p. 6).

..topsoil , if present, will be stockpiled separate from the substrate material…Washed gravel will be returned to the test hole, then the test hole will be reclaimed to normal land contours using the material that came out of the hole and/or like material. Topsoil will be spread and the disturbed area will be seeded using a seed mix recommended by the Forest Service that is free of noxious weeds. (p. 6)

At Fall shutdown, roads will have water bars improved, if needed, areas of bare soil caused during the course of the mining season will be seeded with seed certified free of noxious weeds. (p. 8)

Test holes will be refilled with washed gravel and like material to normal land contours (p. 8).

Dried silt and sand from the settling ponds will be used as growth medium (p. 8)

No hazardous substances or chemicals will be used other than diesel….and small amounts of other petroleum products…These products will e stored in the bed of a pick-up with canopy (p. 9)

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil will be removed from the NF (p. 9).

Should there be a spill of petroleum products, the contaminated soil will be removed from the National Forest (p. 11)

During ongoing mining activities all disturbed sites…are maintained in a stable condition (p. 11)

Roads are treated to prevent significant soil movement, rutting and sedimentation…. (p. 11)

All seed used is certified free of noxious weeds (p. 11).

Areas of bare soil created by the operation are seeded using a Forest Service approved seed mix (p. 11).

Grass, brush and trees are replanted to the current or greater densities (p. 11)

Areas are reclaimed to the pre-mining condition or better (p. 11)

Piles of wood or straw bales are available in case of erosion caused by storm events (p. 11)

All mined areas are stabilized prior to seasonal shutdowns….. (p. 11)

Reclamation

Interim Reclamation will involve

1. maintaining water bars in the roads as needed, rocking any soft sections of road.
2. Seed with noxious weed free seed as soon as test hole is reclaimed (p. 10).

Final Reclamation:

1. Placer pits which are excavated under this plan will be refilled to normal land contours,
2. subsoil, topsoil and/or silt from settling ponds will be placed on tope and
3. these areas will be seeded…
4. Grass will be planted in areas disturbed (p. 10).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Sites 1, 2, and 3

Limit the size of the hole at any one time to either 10 feet or less or start the hole 5 to 10 feet back from point where the hillslope has a break in slope just before it reaches the wetland meadow area (wetland protection measure)

Site 4

None needed

General Requirements (Appendix 2)

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Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Last Chance Creek where it exists in the project area.

Placer-related activity

Same as Soils below

Access Roads

TA road 7355-M1a: All Z-requirements EXCEPT Z11. R13 applies

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. It has water year round and good riparian vegetation. Good wildlife habitat. No reclamation required.

Primary, large settling pond: R10, R15, 16, 18. Up on the terrace. No riparian vegetation. No wildlife value. Reclaim

Secondary, small overflow settling pond: R10 only. This pond is separated from the source water pond by a berm. It has water year round and good riparian vegetation. Good wildlife habitat. No reclamation required.

Old Eric 1 and 2

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Groundwater
Access: existing TMA road (Appendices 3 and 7)
Fords: None
Suction dredging: Yes, on Granite Creek

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Water for processing will come from ground water which fills an old settling pond and is recirculated. Water from processing is discharged into a settling pond. (p.6)

The old ditch which intersects with the creek will be closed off so that water cannot drain from the settling pond. A new berm will be established within the settling pond, ten feet from the creek to keep processing water out of the creek (p. 6)

Suction Dredging

Suction dredge operation will be conducted within wetted perimeter of Granite Creek. Parameters associated with State Permit will be followed (p. 6)

Dredging will be done under the terms of the State permit or as directed by the Forest Service (p. 8)

FS NOTE: Suction dredging under Alternative 2 is analyzed based on ODEQ 700 PM permit requirements because they have jurisdiction over suction dredging under the Clean Water Act, not the Forest Service. See Appendix 4A for the ODEQ 700PM permit and permit requirements.

S

Any top soil removed will be stockpiled for future reclamation (p. 8)

All fuel will be stored in pickups in five gallon or smaller cans (p. 8)

Forest Service will be notified if any fuel spills occur (p. 8).

Reclamation

Reclamation will be

1. done annually or as directed by the Forest Service.

2. Top soil will be stockpiled for use in final reclamation.

3. Grass seeding and fertilization will be done on disturbed areas as prescribed by the Forest Service (p. 9)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Settling Pond

Water temperature related: No standing water is permissible in the settling pond beyond 1 day.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

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Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

TA road: All Z-requirements EXCEPT Z11 and Z14. R13 does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10, R15, R16, R 18. Pond is just a test hole the miner dug that is capturing some groundwater. No riparian vegetation, steep walled. No wildlife habitat. Reclaim.

Settling pond: R10 only. This is a well vegetated, dry depression right next to the creek. Has wildlife value. No reclamation required.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).

Olive Tone

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: a spring and Olive Creek
Access: existing TMA roads (Appendices 3 and 7)
Fords: 1, across Olive Creek
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Two [proposed] off channel ponds located approximately 40 feet from the creek …. (p. 8)

A buffer of rocks from historic mining practices is located between the road and the stream. This will not be disturbed (p. 8).

No trees providing shade to the creek will be removed (p. 8)

Correspondence dated 10/2/11

Both [proposed] ponds will be bermed on the stream side to prevent runoff and will be continuously monitored to ensure no turbidity enters the creek.

Soil Resource Protection Measures

Washed tailings will be returned to the test dig sites (p. 9)

Reclamation will be ongoing (p.9)

Any spilled fuel will be removed from the National Forest (p. 12).

If a large spill occurs on the ground, the soil will be bermed around the spill area, so the material will be contained. Straw or absorbent material will be used to soak up excess spill material and the saturated soil and material will be excavated to the depth of saturation and removed from the National Forest (p. 12)

Absorbent material will be on site in case of small spills (p. 12)

Contaminated soil will be excavated to the depth of saturation and removed from the National Forest (p. 12)

Reclamation

Each test hole will be reclaimed by refilling with washed tailings, replacing substrate and then place topsoil on top (p. 11)

Topsoil will be seeded with a Forest Service approved mix (p. 11)

Final reclamation will include mine access roads will be seeded and covered with wood and closed to all vehicles (p. 11)

All areas within 100' of Olive Creek will have trees, brush and grass replanted to approximate current densities (p. 11)

Process ponds will have banks sloped when mining activity is completed and the banks will be stabilized with brush and grass (p. 11)

The mining access roads will be closed to traffic, seeded and covered with down wood (p. 11)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Settling Ponds

A trench will be dug parallel to the settling ponds for the pond length plus five feet on either side. The trench will be on the stream side of the settling ponds and 5 to 20 feet away from the ponds and the location field verified with the Forest Service prior to installation. The trench can be lined with 1) a bentonite blanket, 2) filter cloth, 3) plastic to eliminate the potential for subsurface flow to transport sediment into the creek (Appendix 1C for schematic).

If a bentonite blanket is used then it can be left buried. If filter cloth or plastic is used it must be removed at completion of the project.

Fords

None needed. Ford already hardened

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions

G6: Tree removal related
G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Olive Creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10, R15, R16, R18. New construction. Reclaim

Settling pond**:** R10, R15, R16, R18. New construction. Reclaim

Rosebud

Mining activity: Placer
Mining sites: 3
Processing sites: 1
Water source: Groundwater
Access: Forest Service closed road (Appendices 3 and 7)
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Areas to be tested are outside the Granite Creek riparian area, and are located on flat ground. The main access roads and dredge tailing piles are between the testing area and the creek….Waste water from processing will be captured in natural depressions and allowed to soak into the ground (p. 2-3).

The suction pump is screened and not used in Granite Creek (p. 4)

Soil Resource Protection Measures

Tailings will be stockpiled and returned to the pit at the end of the season. Any topsoil will also be stockpiled and used in reclamation (p. 4)

Reclamation

Reclamation is done yearly at the end of the operating season. Reclaimed areas will be seeded with a grass mixture approved by the Forest Service (p.5)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. All settling ponds must be sufficiently bermed to prevent water and sediment from overtopping to top of the ponds and flowing down the road and into the old dredge ponds. Berm material can be either sediment or straw bales but must be stable.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of dredge ponds

Placer-related activity

Same as Soils below

Access Roads

TA road 1000-E1a: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. Old dredge pond with good riparian vegetation. Has wildlife value. Fish may be present in ponds. No reclamation required.

Settling pond: R10, R15, R16, R18. Dry depressions at base of hillslope. No riparian vegetation. No wildlife value. Reclaim.

Royal White

Mining activity: Lode
Mining sites: 1
Processing sites: 1
Water source: Runoff and storage reservoir
Access: existing TMA roads (Appendices 3 and 7)
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

FS NOTE: Forest Service Evaluation of Plan of Operation, Section VI: The Required changes/modifications/special mitigation for plan of operations found in Section VI on pages 11 and 12of the Plan are old FS requirements. They have been updated for the Granite Mining EIS. Therefore, the changes/modification/special mitigations found in this section were not evaluated as part of the proposed Plan under Alternative 2 and do not apply. The new FS requirements are evaluated under Alternative 3.

Water Resource Protection Measures

No chemicals are used in milling (p. 7)

Mounds of tailings line the stream, there is a buffer of over ¼ mile between the current Royal White millsite and the gulch and over 300 feet between the Blackhawk millsite and the gulch (p. 7)

Tanks and ponds will be monitored to be sure they do not discharge process water (p. 9).

No fueling of equipment or routine maintenance takes place near streams, springs, or wetlands (p. 12)

A zero discharge settling/recycling system is utilized (p. 12)

No waste storage occurs in riparian areas, floodplains, or spring areas (p. 12)

Soil Resource Protection Measures

No new construction is needed but the roads will be maintained. Roads will be cleared of deadfall and debris. Dump rock may be used to fill pot-holes (p. 2)

Areas of bare soil will be seeded. Mine access roads [existing TMA roads 1042-E2a, E2b, E2c] will be waterbarred where needed. Rock mine dumps are stable (p. 9)

During seasonal closure, roads will be waterbarred where drainage is needed (p. 9)

Areas of bare soil caused during the course of the mining season will be seeded with seed certified free of noxious weeds (p. 9)

Mill tailings will be redeposited underground in dry tunnels or shafts (p. 9)

No hazardous substances or chemicals will be used other than petroleum products (p. 10)

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil will be removed from the NF (p. 11).

Reclamation

Interim reclamation will involve

1. maintaining waterbars in the roads as needed, and
2. seeding areas of bare soil caused by the mining operation. Seed that is free of noxious weeds will be used (p. 11)

Final reclamation will include

1. stabilizing mine dumps if needed,
2. filling in and leveling the areas where the pond is at the Royal White #1
3. the mine access roads [existing TMA roads 1042-E2a, E2b, E2c] will be closed with a berm of rock to control public access.
4. Grass, brush and trees will be planted to approximate the current plant densities (p.11)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related

G5: Disturbed areas kept in stable conditions
G6: Tree removal related

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Not needed because on a ridge

Lode-related activity

L1 – L12

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

TA roads: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

N/A. No ponds

Ruby

Mining activity: Placer
Mining sites: 8
Processing sites: self-contained so a travelling site
Water source: Uncertain. May be trucking it in.
Access: Existing TMA roads (Appendices 3 and 7)
Fords: Two. One is across Clear Creek and one is across Ruby Creek
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Water will be from the self-contained wash plant and the test hole. Will stay a minimum of 10 feet from the edge of the water and the riparian vegetation will remain intact in the area (p. 5)

Soil Resource Protection Measures

All test holes will be backfilled after every test wash. Reclamation will be on a seasonal basis and no holes will be left open over the winter without prior approval from the Forest Service.…Existing top soil will be replaced on the disturbed areas and they will be revegetated as needed (p. 7).

Reclamation

Interim reclamation:

1. All test holes will be backfilled after ever test wash
2. Reclamation will be on a seasonal basis and no holes will be left open over the winter without prior approval from the Forest Service
3. Equipment will be moved away from the riparian area each fall
4. Existing top soil will be replaced on the disturbed areas and they will be revegetated as needed (p. 7)

Final reclamation:

1. The pre-existing structures and roads will be left in place unless other arrangements are made with the Forest Service.
2. All of my test holes will be filled in, rehabbed and equipment will be removed from Forest Service land (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Fords

1. Clear Creek ford: The southwest approach to the ford that crosses Clear Creek will be rocked and sloped. The northeast approach would be rocked.

2. Ruby Creek ford and TA 1310-E1a:

The Ruby Creek ford and TA 1310-E1a are combined because the discharge call under Alternative 2 is the result of the way the road and Ruby Creek interact and can mobilize and transport sediment AND the way road use, the ford and Ruby Creek interact to mobilize and transport sediment. In identifying Forest Service WRPMs to prevent a discharge of sediment into Ruby Creek from the use of TA 1310-E1a and the Ruby Creek ford it was necessary to divide the road into segments. See map in the project file for delineations of segments.

Segment A: The portion of TA 1310-E1a between the Clear Creek ford and the Ruby Creek ford.

2. No WRPMs are needed as this section of the road does not interact with Ruby Creek.

Segment B: The north and south approaches to the ford.

4. The north and south approaches to the ford and 25 feet of the road on the south side of the ford, just before the approach begins will be rocked.

Segment C: The portion of the road between the Ruby Creek ford and Site 2

3. Weed-free straw bales will be placed end to end starting at the north side of the ford to Site 2 along the west side of the road.

4. Straw bales will be two bales deep to act as a dam to prevent water from Ruby Creek from flowing onto Segment C and moving sediment generated by road use into Ruby Creek.

Segment D: The portion of the road between Site 2 and Site 1

1. If water from Ruby Creek is observed flowing onto this segment of road, then the WRPMs stated for Segment C would be put into place.

Mining at Sites 1, 2, and 3

1. Measurement of the 10 foot buffer would start at the top of the valley floor-channel break in slope (See Appendix 1B, Figures 1B-2 and 1B-3 for explanation of this feature)

2. Use of the temporary road behind barricade that accesses work sites # 1, 2, and 3 is limited to after the road goes dry.

3. Straw bales or waddles must be placed between work sites #1, 2 and 3 and Ruby Creek.

4. Straw bales or waddles must be placed across the access road to sites 1, 2, and 3 to trap any sediment generated by the activity and prevent it from entering into Clear Creek

Mining at Sites 4, 5, 6, and 8

1. Measurement of the 10 foot buffer would start at the top of the valley floor-channel break in slope (See Appendix 1B, Figures 1B-2 and 1B-3 for explanation of this feature)

2. Straw bales or waddles must be placed between test holes and Clear Creek and between the test holes and the side channel to Clear Creek

Mining at Site 7

None needed

Temporary ATV Bridge

1. Stream banks, where the bridge will be placed, will be rocked.

2. At the beginning of each season, this area will be checked and more rock added as necessary.

3. Bridge will be removed each Fall

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G7: Fords

G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Clear Creek and Ruby Creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

N/A. No ponds. Processing site is a movable self-contained unit.

Sunshine McWillis

Mining activity: Placer
Mining sites: 2
Processing sites: 2
Water source: Groundwater
Access: closed and decommissioned Forest Service roads and existing TA road (Appendices 3 and 7)
Fords: None
Suction dredging: Yes

Alternative 2 (Plan as submitted by miner)

Water Resource Protection Measures

Both sets of ponds are located over 30 feet from McWillis Gulch. These are pit type ponds without dams (p. 3).

No chemicals are used in this operation **(**p.3).

…processing, exploration and mining will take place away from any live water (p. 4)

FS NOTE: The plan refers to hardened ford (p. 5) but this has been replaced by a wooden bridge. Therefore, the effects of using a ford are not analyzed.

Soil Resource Protection Measures

To control erosion, areas of bare soil resulting from the operation will be seeded (p. 4)

Downed wood, where available will be placed on reclaimed areas to help hold the soil (p. 4)

No hazardous substances or chemical will be used other than petroleum products (p. 5)

Absorbent material or drip pans will be placed under stationary equipment (p. 5)

Absorbent material will be kept on site in case of small leaks or spills. Equipment located on site will be used to berm, contain and remove contaminated soil and rock in the event of a spill (p. 5)

Suction Dredging

Dredging will take place during the state recommended instream period (p. 5)

Reclamation

Reclamation, including vegetation of reclaimed areas will be kept current …(p. 4),

…at close of the operation, roads will be in a stable, drivable condition (p. 4)

Interim reclamation will involve ongoing reclamation of test and mining excavations and seeding of areas of bare soil where disturbance took place (p. 6).

Seed that is free of noxious weeds will be used (p.6)

Settling ponds will be left in place (p. 6)

Final reclamation …..will include

1. closing all mining excavations and recontouring the surface.

2. Process ponds will be reclaimed to normal land contours.

3. The road down to the claim [existing TMA 1305-M1a] will be left in a stable, non-eroding condition

4. The mine access roads [existing TMA road 1305-M1a] will continue to be used for several years following reclamation to monitor the seeding…. Eventually, the road will be closed by piling rock tailings (p. 6)

> **FS NOTE:** The Process ponds to be reclaimed under the miner's Final Reclamation above refers to the source water pond (Pond 1) and the two settling ponds (Ponds 2 and 3).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Processing Site 1

1. Only Processing site 1 will be used.

2. Berm the downstream end of the Pond 2 (settling pond) so that the only outlet point is the pipe.

Processing Site 2

1. This site not used under Alternative 3

Mining at Mining Site #2

1. Straw bales or waddles must be placed between the edge of the hillslope and the gulch at mining site #2.

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2. Therefore, the Forest Service General Requirements listed below were added

under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Visual monitoring of McWillis Gulch is not required when McWillis Gulch is dry.If he operates when there is flow, then M1 applies.

Placer-related activity

Same as Soils below

Access Roads

FS closed road and FS decommissioned road: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

TA road 1305-M1a: All Z-requirements EXCEPT Z11. R13 applies

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds at Processing site #1

Source water pond (Pond 1): R10, R15, R16, R18. Limited water. Very limited vegetation (grasses) at bottom of pond. Steeped walled. No wildlife value. Reclaim.

Settling ponds (Ponds 2 and 3): R10, R15, R16, R18. Mostly dry. No riparian vegetation. No wildlife value. Reclaim.

Pond at Processing site #2

Dropped under Alternative 3.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).

Tetra Alpha Placer

Mining activity: Placer
Mining sites: 2
Processing sites: 1
Water source: Groundwater
Access: closed FS road, one existing TMA road, and one proposed TMA road
Fords: Three fords. All cross Boulder Creek. One is existing (west ford) and two are proposed (middle and east fords).
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

FS NOTE: Forest Service Evaluation of Plan of Operation, Section VI: The Required changes/modifications/special mitigation for plan of operations found in Section VI beginning on page 7 of the Plan are old FS requirements. They have been updated for the Granite Mining EIS. In addition, the NAZER Milling amendment is also old and tied into the old FS requirements. Therefore, the changes/modification/special mitigations found in this section were not evaluated as part of the proposed Plan under Alternative 2 and do not apply. The new FS requirements are evaluated under Alternative 3.

Water Resource Protection Measures

A 25 foot buffer will be maintained between the mining excavations and the Boulder Creek high water mark (p. 3)

No excavations within 50 feet of the creek will be left open over the winter (p.3)

The stream and wet area where S. Boulder enters Boulder Creek will be avoided and a 25' buffer around the wet areas will be maintained (p. 3).

Where stream banks are steep and eroding, care will be taken to not increase the rate of soil movement (p. 3).

If the mining site is wet, gravel will be excavated and stockpiled until it can be transported across Boulder without sediment entering the stream (p. 3).

Should the ground become saturated and begin leaching muddy water into the creek, the operation will cease and the ponds will be sealed to prevent any further sedimentation of the creek (p. 5).

Boulder Creek will be monitored daily while operations are taking place (p.5)

No shade will be removed which could cause stream temperatures to rise (p. 6)

Correspondence dated July 20, 2011:

A 25 foot buffer will be maintained between the mining excavations and the Boulder Creek high water mark….No excavations within 50 feet of the creek will be left open over the winter… (p. 3).

Soil Resource Protection Measures

If values do not warrant mining, washed gravel will be returned to the hole, the hole will have the surface recontoured and will be covered with topsoil. (p. 3)

When one end of the excavation is mined out, the gravel will be returned to the hole and topsoil will be placed back on top. (p. 3)

Areas disturbed under this plan will be seeded. Roads will be waterbarred if necessary (p. 5)

All areas of bare soil near the drainage caused by the mining operation will be revegetated with grass which is free of noxious weeks. Noxious weed-free straw will be place on reclaimed areas within 50 feet of the creek to help hold the soil and promote growth of grasses (p. 5)

Reclamation

Each test hole will be reclaimed by refilling with washed tailings, replacing substrate and then placing sod or topsoil on top (p. 7).

Topsoil will be seeded with a Forest Service approved mix (p. 7)

When the south side of boulder Creek is worked out….this whole area will be seeded with grass mulched with straw and wood and tree seedlings will be planted to Forest Service specifications. (p.7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Stage 1 area

1. The high water mark is defined as the back edge of the meadow because the lushness of the meadow vegetation indicates that this area is frequently flooding and has a high water table. Measurement of the 25 foot buffer would start at the back edge of the meadow.

Stage 2 area

1. Measurement of the 25 foot buffer will begin at the hillslope-meadow boundary.

2. A straw bale berm will be constructed at the base of the hillslope.

Fords

West ford (existing): used to access Stage 1 area

1. Ford approaches will be rocked.

Middle ford (proposed): Dropped under Alternative 3

East ford (proposed): used to access Stage 2 area

1. Construction will take place during the instream work window
2. Material will be pulled away from the stream and deposited in a location where the sediment will not be able to reach the stream during high flow
3. Small straw waddles or bales or silt fences will be placed along the stream when pulling back the material during ford construction or maintenance
4. Ford approaches will be rocked and sloped
5. General requirement G7

Access Road

TMA 7355-M3d (meadow portion): Proposed miner access road to access Stage 2 area where it crosses the meadow:

1. Road will be rocked to at least 20 feet back from the creek in the meadow area to ensure that no sediment will make it to the creek and at additional areas as needed to ensure that road would not erode and trigger gullying in the meadow.
2. Two-track location would be flagged by Forest Service personnel.

Site-specific Fish Protection Measures relevant to Water Resources

Water Withdrawals

1. No water withdrawals are permitted in Boulder Creek after August 15 to protect fish migrating to spawn.
2. If a stream is dry below where the miner is working prior to August 15, then the miner must cease withdrawing water from the creek until flow exceeds the amount withdrawn

General Requirements (Appendix 2)

The Water and Soil Resource Protection Measures provided by the miner under Alternative 2 are clearly intended to minimize impacts and improve conditions. However, in many cases they are not as clear or as specific as they need to be to allow a clear analysis of effects under Alternative 2.

Therefore, the Forest Service General Requirements listed below were added under Alternative 3. These requirements, while similar to some of the miner's protection measures, spell out in greater detail how the measures would be applied. The addition of Forest Service General Requirements ensure consistency of protection and reclamation measures across all Plans and provide clear and consistent direction to the miner.

Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G7: Fords
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Visual monitoring of Boulder Creek is not required given site conditions and distance from the creek.

W1 – 3: Requirements for working in wetlands and floodplains

Placer-related activity

Same as Soils below

Fords

G-7

Access Roads

FS closed road: All Z-requirements EXCEPT Z14. In addition, R13 also does NOT apply.

TA roads: All Z-requirements. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond and settling pond are the same pond: R10 only. Stable, good riparian vegetation, good wildlife habitat. No reclamation required.

Tetra Alpha Mill and Lode

Mining activity: Lode
Mining sites: 1
Processing sites: 1
Water source: Groundwater
Access: closed FS road (Appendices 3 and 7)
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

FS NOTE: Forest Service Evaluation of Plan of Operation, Section VI: The Required changes/modifications/special mitigation for plan of operations found in Section VI beginning on page 7 of the Plan are old FS requirements. They have been updated for the Granite Mining EIS. In addition, the NAZER Milling amendment is also old and tied into the old FS requirements. Therefore, the changes/modification/special mitigations found in this section were not evaluated as part of the proposed Plan under Alternative 2 and do not apply. The new FS requirements are evaluated under Alternative 3.

Water Resource Protection Measures

Lode Plan

No chemicals will be used in the operation (p. 3).

No water will be used in the operation other than small amounts for drilling underground (p. 5)

Mill site Plan

Ponds will be constructed in the area already impacted by mining years ago…..Settling ponds will be long and narrow and constructed as far from Boulder Creek as possible (p. 3).

FS NOTE: These ponds have already been constructed.

No chemicals will be used in the operation other than inside an enclosed lab (p. 3).

Fuel will be stored in a location agreed upon by the Forest Service at least 75 feet from the creek (p. 4)

A high berm of tailings lines Boulder Creek and the rock tailings will preclude run-off entering the creek (p. 5)

FS NOTE: The high berm of tailings does not exist.

Boulder Creek will be monitored for any increases in turbidity (p. 5).

Soil Resource Protection Measures

Lode Plan

The steep cat trail [will be water barred, seeded and wood will be placed to help hold the soil in the fall (p. 3).

Mine dumps will be stabilized (p. 5).

Areas of bare soil will be seeded using a Forest Service approved seed mix (p. 5)

Mill site Plan

If ore values are not as expected,at the time the onds are full, ponds will be covered with soil and revegetated and the mill will be removed (p. 3)

Fuel storage will require a spill prevention plan which will be an addendum to this plan of operation (p. 4).

Roads will be rocked as needed to curtail dust and preclude rutting (p.4)

Areas of bare soil will be seeded using a Forest Service approved seed mix (p. 5).

All areas of bare soil caused during this operation will be revegetated to prevent soil movement (p. 5)

Roads and the mill area will be rocked (p. 5)

Mill tailings will be reclaimed by covering with soil and revegetating (p. 6).

Reclamation

Lode Plan

When the adit has been totally mined out and no ore remains,

1. the mine access roads [*TA road 7355-E1a to lode adit*] will be closed to vehicles, seeded and drainage features installed.

2. All areas of bare soil will be seeded.

3. Dumps will be stable (p. 7)

Mill site Plan

When …no ore remains for milling, access roads [FS closed road and TA roads 7355-M4a, M4b] will be closed… seeded and drainage features installed (p. 7).

Ponds will be reclaimed (p. 7)

The site will have trees planted where these were removed and it will be revegetated with the appropriate grass species (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

None needed

Site-specific Fish Protection Measures relevant to Water Resources

Water Withdrawals (*From Fisheries Section*)

1. No water withdrawals are permitted in Boulder Creek after August 15 to protect fish migrating to spawn.

2. If a stream is dry below where the miner is working prior to August 15, then the miner must cease withdrawing water from the creek until flow exceeds the amount withdrawn

General Requirements (Appendix 2)

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Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized

H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Boulder Creek

Lode-related activity

L1 – L12

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

FS closed road and TA road 7355-E1a: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

TA roads 7355-M4a, M4b: All Z-requirements. R13 applies.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. Pond is Last Chance Creek where it has been historically bermed to create a pond. Has water year round. Stable with well-developed riparian vegetation. Good wildlife habitat. No reclamation required.

Settling water ponds: R10, R15, R16, R18. Ponds are dry depressions along the hillslope. Reclaim.

Troy D

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Groundwater
Access: existing TA roads (Appendices 3 and 7)
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

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Water Resource Protection Measures

The ponds are located over 100' from Granite Creek… (p. 3).

A test hole will be excavated to bedrock at least 50 feet from the creek in the area where the stream is entrenched and high mounds of tailings line the creek (p. 3).

Other areas on the claims will be tested at least 25-50 feet from Granite Creek (p. 3).

No trees providing shade to Granite Creek will be removed (p. 3)

A rock berm at least 25' wide will be maintained between the test site and Granite Creek. Stockpiles of fines will be located at least 50' from the berm and will be seeded if left stockpiled over 2 weeks (p. 5)

Granite Creek will be monitored daily for increases in turbidity while mining is taking place (p. 5).

Soil Resource Protection Measures

Washed tailings will be returned to excavation in an ongoing program of reclamation (p. 5)

No onsite storage of petroleum products is planned (p. 6)

Absorbant material will be available in case of a leak of hydraulic fluid or diesel. Areas of contaminated soil will be excavated and removed from the National Forest (p. 7).

Reclamation

Each fall the area will be stabilized for winter by

1. Refilling test holes
2. Replacing topsoil (silt and sand from the ponds)
3. Returning test sites to normal contours and seeding.
4. Testing of water samples will take place during the winter months (p. 7).

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. Pond A would be used only as the source water pond. (See site map in project file)

2. Pond B would be used as a settling pond. A trench will be dug parallel to the settling ponds for the pond length plus five feet on either side. The trench will be on the stream side of the settling ponds and 5 to 20 feet away from the ponds and the location field verified with the Forest Service prior to installation. The trench can be lined with 1) a bentonite blanket, 2) filter cloth, 3) plastic to eliminate the potential for subsurface flow to transport sediment into the creek (Appendix 1C for schematic).

   If a bentonite blanket is used then it can be left buried. If filter cloth or plastic is used it must be removed at completion of the project.

General Requirements (Appendix 2)

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Protection of Water and Soils Resources

G4: Surface runoff and water quality related
G5: Disturbed areas kept in stable conditions
G6: Tree removal related
G12: Effective buffer strips to protect water quality during seasonal runoff events
G14: Beaver dams protected
G15: Stream buffers undisturbed

H1: No use of processing chemicals to extract ore unless authorized

H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Specific requirements for visual monitoring of Granite Creek

Placer-related activity

Same as Soils below

Access Roads

TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. Old dredge pond. Stable. Has riparian vegetation and wildlife value. No reclamation required.

Settling ponds: R10 only if not enlarged. If enlarged, then R10, R15, 16, 18 as new construction.

Yellow Gold

Mining activity: Placer
Mining sites: 1
Processing sites: 1
Water source: Groundwater
Access: closed FS roads and existing TMA road
Fords: None
Suction dredging: No

Alternative 2 (Plan as submitted by miner)

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Water Resource Protection Measures

Three off-channel ponds located approximately 100 feet from Last Chance Creek…are used in the operation (p. 5).

No excavation with the backhoe will take place closer than 25 feet from Last Chance Creek (p. 5)

No impacts to tailings mounds or to riparian vegetation are planned (p. 5)

…no trees providing essential shade to the stream will be removed (p. 5).

The process ponds are pit-type ponds with low 2-3' dams and are 100' from the creek (p. 5).

A shut-off valve ensures that ponds do not overtop while they are being filled (p. 7).

Mounds of old rock tailings which line the narrow channel and keep it entrenched, will be left undisturbed….. Surface runoff will be ditched around the main processing site so that this water does not run into the ponds. (p. 7).

Soil Resource Protection Measures

[Ponds] will be cleaned as needed and the silt and sand stockpiled for use in reclamation (p. 5)

Washed tailings will be returned to the mining excavations or will be used on the access road surface (p. 7)

Hydraulic fluid, gas and oil will be brought in using containers that range from one to five gallon containers (p. 8)

Absorbent material will be kept on site in case of small leaks or spills. Contaminated soil will be removed from the NF (p. 9)

Reclamation

The mining areas will be refilled in an ongoing manner after testing/mining is completed and topsoil will be placed on top of the reclaimed excavation sites. The surface will be contoured to approximately the natural lay of the land. Areas of bare soil will be seeded with a seed mix certified free of noxious weeds and mulched with wood (p. 5)

Interim Reclamation will involve

1. reclaiming test/mining excavations by filling with gravel, replacing substrate and topsoil and seeding.

2. The access road down to the ponds will have waterbars in place.

3. Down wood will be placed over the reclaimed test-mining sites to help hold the soil.

4. Seed that is free of noxious weeds will be used.

5. Seedlings will be planted where trees are removed (p. 9)

Final Reclamation will include

1. reclaiming all test/mining sites to normal contours,
2. leaving the existing ponds for future mining and for wildlife and administrative use.
3. The access roads #25 [FS closed road 7355-025] and #26 [FS closed road 7355-026] will be closed with a berm of dirt.
4. The unnumbered mine access road from Bear Camp will be closed with a berm of tailings.
5. Grass, brush and trees will be planted to approximate the current plan densities (p. 9)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

1. Settling ponds would be located with input from the minerals administrator and district hydrologist and appropriate WRPMs identified and implemented

2. The foot bridge will be limited to planks of wood that can be moved at the end of each season by hand.

General Requirements (Appendix 2)

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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Not needed. Last Chance Creek in this area is just a large pond and wetland.

Placer-related activity

Same as Soils below

Access Roads

FS closed roads and TA road: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

Source water pond: R10 only. Pond is Last Chance Creek where it has been historically bermed to create a pond. Has water year round. Stable with well-developed riparian vegetation. Good wildlife habitat. No reclamation required.

Settling ponds: R10, R15, 16, 18. New construction. Reclaim

Yellow Jacket

Mining activity: Placer and Lode
Mining sites: 1
Processing sites: 1
Water source: adit water
Access: existing TMA roads
Fords: None
Suction dredging: Yes, Orofino Gulch

Alternative 2 (Plans as submitted by miner)

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Water Resource Protection Measures

Near the gulch, brush has established and these areas along the creek will be protected (p.3).

A 20 foot no disturbance buffer will be maintained between the test holes and gulch. The rock tailings piles along the stream, combined with the 20 foot buffer, will protect water quality (p. 3).

The springs on the claims will be protected by maintaining a 20 foot or great buffer around them (p. 3).

All water will be contained in ponds…The gulch near the mining area will be checked visually for increased in sediment caused by this operation (p. 5).

Testing will take place 20 feet from the creek, mining will take place 20 feet fromt eh creek with the addition of straw bales along the rock piles lining the channel to preclude sediment entering the streams (p. 5)

Fueling will take place at least 50 to 100 feet from any springs or streams (p. 6)

Suction Dredging

Dredging will take place only during the instream period recommended by the State (p. 5)

Soil Resource Protection Measures

Topsoil, where present will be stockpile. Substrate material will also be stockpiled separate from the topsoil (p. 3)

Existing piles of gravel will be used to fill the excavations or clean washed gravel will be hauled back to fill the excavations (p. 3).

The access road to the mining and processing sites will be maintained with waterbars where the road is on the National Forest (p. 3)

Areas of bare soil which result from the operation will be vegetated. Undisturbed buffer areas around the springs and along the gulch will be maintained. Roads will be rocked and water barred (p.5)

Areas of bare soil which result from this operation will be seeded (p. 5)

Placer tailings will be used to refill test excavations and some rock from the placer tailings and mine dump will be used on the roads. Where topsoil is stockpiled, it will be placed on top of the reclaimed area (p. 5)

If fuel is stored on the National Forest, a lined containment vault will be placed under the stand with sufficient capacity to hold the entire contents of the barrel should a leak occur (p. 6)

Absorbent material will be kept on site in case of small spills (p. 6)

Small spills will be cleaned up and soil removed from the National Forest (p. 6)

Reclamation

Annual reclamation will consist of

1. maintaining mine access roads,

2. refreshing waterbarrs

3. seeding areas of bare soil disturbed under this operation

4. Test/mining areas will be reclaimed on an ongoing basis by refilling with rock tailings, returning to normal land contours and replacing topsoil.

5. Seeding of areas of bare soil which result from the operation will take place annually or as needed (p. 7).

Final reclamation

1. Mine access roads will be water barred and closed on the National Forest

2. Mined areas will be returned to normal contours

3. Topsoil will be place

4. Wood will be spread

5. The area will be vegetated.

6. Grass, brush and trees will be planted to the current densities (p. 7)

Alternative 3 (Plan with Additional FS Protection Measures)

Site-specific Water Resources Protection Measures (WRPMs)

Lode activities are located on private property. However, claimant, must ensure that there is no discharge of water, heavy metals or sediment onto Forest Service lands or placement of lode material onto Forest Service lands.

General Requirements (Appendix 2)

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H1: No use of processing chemicals to extract ore unless authorized
H2: No chemical flocculent or surfactant used in ponds unless EPA approved
H3: Have lined containment vault under hazardous material storage barrels
H5: Spill kit on site
H6: Hazardous substances not to be released on land, rivers etc. Have oil absorbing mats
H8: Check equipment for leaks

M1: Not needed. No real creeks in this area as a result of past hydraulic mining.

Placer activity

Same as Soils below

Lode-related activity

L1 – L12

L3, 8, 11: These require that water exiting the mine be tested for heavy metals.

L4: This requires that the first run of the adit material be tested to determine if potential for release of heavy metals as well as additional testing throughout the life of the operation.

L5: This requirement states that test results will be provided to the Forest Service directly from the testing facility. Should the results exceed EPA and ODEQ's standards, the miner must address this issue prior to continuing this portion of the operation (36CFR 261.11 (c)).

L1, 2, L 6, L7, L9, L 10, and L12. General Lode requirements.

Access Roads

Existing TA roads: All Z-requirements EXCEPT Z11 and Z14. In addition, R13 also does NOT apply.

Soils

R1, R2, R3, R4, R5, R6, R7, R8, R9, R11, R12, R13, R16, R17, R18.

Ponds

N/A. Ponds on private land.

ODEQ requirements related to Suction Dredging

Miner will adhere to the terms and conditions listed in ODEQ 700 PM permit (Appendix 4a).